

Section 5-5: The Triangle Inequality

By the end of this lesson, you should be able to answer:

- How do you use the Triangle Inequality Theorem to identify possible triangles?
- How do you prove triangle relationships using the Triangle Inequality Theorem?

Exercise: Draw a triangle with the following side lengths: 6 cm, 4 cm, and 10 cm

Theorem 5.11 - Triangle Inequality Theorem

Example 1: Is it possible to form a triangle with the given side lengths? If not, explain why not.

a. $6\frac{1}{2}$, $6\frac{1}{2}$, $14\frac{1}{2}$

b. 6.8, 7.2, 5.1

Example 2: In $\triangle ABC$, $AB = 7.2$ and $BC = 5.2$. Which of the following measures cannot be AC ? Why not?

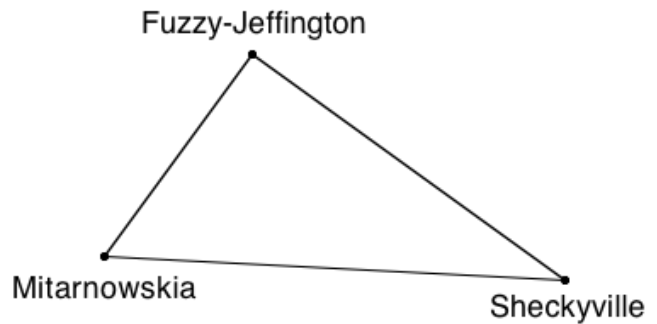
a. 7

b. 9

c. 11

d. 13

Example 3: The towns of Mitarnowskia, Fuzzy-Jeffington, and Sheckyville are shown in the map below. Prove that by driving from Mitarnowskia to Fuzzy-Jeffington and then Fuzzy-Jeffington to Sheckyville is a greater distance than driving from Mitarnowskia to Sheckyville.



Problem Set:

"If you can find a path with no obstacles, it probably doesn't lead anywhere." - Frank A. Clark